"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

Panasyuk, V.D.

AUTHORS: Fialkov, Ya. A., and Panasyuk, V.D. 20-3-22/46

TITLE: The Kinetics of the Isotopic Exchange of Sulphate Ions in Aqueous Solutions of Trivalent Cobalt Ammines and Aquoammines (Kinetika izotopnogo obmena sul'fatnykh ionov v vodnykh rastvorakh ammiakatov i akvoammiakatov trekhvalentnogo kobal'ta).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 3, pp. 429-432 (USSR).

ABSTRACT: The present report continues the previous works of the authors on the same subject. Now they studied the afore-said exchange kinetics of the SO_4^{2-} - ions of the following complex compositions: a) $[Co(NH_3)_4(H_2O)SO_4]_2SO_4 \cdot 2H_2O$ and b) $[Co(NH_3)_5SO_4]_2 \cdot SO_4 \cdot H_2O$.

The acqueous solutions of these two substances differ from the previously investigated systems only ba the concentration of hydrogen ions. They are only quoted for 0,1 N - solutions of normal- and acid-sulphates. The said difference causes a considerable change of the physical chemical properties of their aqueous solutions and influences intensively the mobility of the complex composition CO^{3+}..... SO_4^{2-}. The kinetics with respect to the substance. a)

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The Kinetics of the Isotopic Exchange of Sulphate Ions in Aqueous Solutions of Trivalent Cobalt Ammines and Aquo ammines. 20-3-22/46

Temperature-dependence of the exchange. Sulphur -35 was used as sodium hyposulphate. The velocity of exchange between the exterior and interior sphere of coordination is well characterized within the scope (or range) of 30° to 50° by the equation of the kinetics of first order, viz. -kt = n (1 - F), in which case F represents the component-share of the exchange. The activation energy of the process = 21 ± 1 Kkal/Mol. Temperature coefficient of the reaction = 5. The variation of the constants of the velocity is well described by Arrenius' equation (fig. 1 curve 1). In solutions of acid sulphate the reaction shows moderate velocity (temperature coefficient = 4). The dependence on the concentration (at 40°). The latter, from 0,05 to 0,2 N does not perceptibly change the nobility of the complex composition. The increase of concentration of the normal complex-salt involves even a certain decelerating tendency. On the other hand the conversion of the SO^{2-}_4 -ions is accelerated with the increased concentration of the sulphate groups in the solution. An increase of concentration of complex salt accelerates the isotope exchange in solutions of acid sulphate. An increased concentration of the sulphate groups in the solution does practically not change the reaction velocity. The results of the two above dependences enable us to contemplate somewhat on the

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isotope mechanism of distribution of the sulphate-ions between the exterior and interior sphere. A protolytical process of dissociation of the water molecule of the inner sphere takes place in aqueous solutions containing a complex ion $[Co(NH_3)_4(H_2O)SO_4]^+$

The decrease of concentration of the H^+ - ions displaces the equilibrium to the right. The hydroxo group formed in the inner sphere increases apparently the mobility of the complex-bound sulphate groups. The isotope ion distribution of $SO_4^{\ast}$ between the two spheres is a secondary process. Its velocity is determined by the state of the afore-said acid-basic equilibrium. Due to these test results it may be presumed that in the mechanism of the isotope exchange of the SO_4^{2-} -ions in the normal sulphate $[Co(NH_3)_5SO_4]_2SO_4 \cdot H_2O$ in aqueous solutions the activation reaction of the complex ion: $/Co(NH_3)_5SO_4/\ 3\ H_2O \rightleftarrows /Co(NH_3)_5H_2O/^{3+} + SO_4^{2-}$ plays an

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The Kinetics of the Isotopic Exchange of Sulphate Ions in Aqueous Solutions of Trivalent Cobalt Ammines and Aquoammines. 20-3-22/46

essential rôle after which an associative process follows. There are 4 figures, and 8 references, 3 of which are Slavic.

ASSOCIATION: Kiyev State University imeni T. G. Shevchenko (Kiyevskiy gosudarstvennyy universitet imeni T. G. Shevchenko).

PRESENTED: April 26, 1957, by I. I. Chernyayev, Academician.

SUBMITTED: April 19, 1957.

AVAILABLE: Library of Congress.

Card 4/4

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

AUTHORS: Fialkov, Ya. A., Panasyuk, V. D.

TITLE: Investigations of Some Physical-Chemical Properties of Aqueous Solutions of Sulfato-Aquo-Tetrammine Cobalt sulfate (Izucheniye nekotorykh fiziko-khimicheskikh svoystv vodnykh rastvorov sulfatoakvotetramminkobal'tisul'fata)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol 3, Nr 5, pp -1117 (USSR)

ABSTRACT: Some physical and chemical properties of diluted solutions of $[Co(NH_3)_4H_2O.SO_4]^{+}{}_2SO_4.2H_2O$ were analyzed. These results were contrasted with the results of research of acid sulfate solutions ($[Co(NH_3)_4H_2OSO_4]^{+}HSO_4.1,5H_2O$). The analyses were carried out by the following methods: Electric conductivity, potentiometric p_H-titration, photometric analysis and exchange of isotopes.
Investigations were made on the kinetic and isotopic distribution of the sulfate ion between the inner and outer coordination spere. The synthesis for the formation of $[Co(NH_3)_4H_2OSO_4]^{+}{}_2.2H_2O$ was described. This compound

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Investigations of Some Physical-Chemical Properties of [illegible]
Aqueous Solutions of Sulfato-Aquo-Tetramine Cobaltisulfate

tates at first as a difficultly crystallizable, [illegible] stance, which crystallizes under slow alcoholic treatment [illegible] red-violet, needle-shaped crystals. The spectrophotometric curve of absorption showed a maximum of absorption at [illegible] and 620μ. The determination of the electric [illegible] proves the normal sulfate more unstable [illegible] The exchange of isotopes in aqueous solutions of $[Co(NH_3)_4H_2OSO_4]_2SO_4 \cdot 2H_2O$ was investigated for [illegible] dency on temperature, on concentration and [illegible] The analysis of sulfate was carried out by means of hydrochloride benzidine. The velocity of reaction [illegible] exchange of the SO_4-ion increased sharply with rising temperature. At equal temperatures and at equal [illegible] the exchange of isotopes [illegible] SO_4- [illegible] complex compounds proceeds faster than in that of acid [illegible] des. The way of the isotope exchange of the SO_4-ion [illegible] ted solutions of $[Co(NH_3)_4H_2OSO_4]_2SO_4 \cdot 2H_2O$ was [illegible] cussed

Card 2/3 There are 7 figures, 3 tables, and 8 references [illegible]

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

Investigations of Some [illegible]
Aqueous Solutions of Sulfo-[illegible]-Tetramine [illegible] sulfate

[illegible] Soviet.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet im. T.G. [illegible] Kafedra neorganicheskoy khimii (Kiyev State University [illegible] T.G. Shevchenko, Chair of Inorganic Chemistry)

SUBMITTED: May 1[illegible], 1[illegible]7

AVAILABLE: Library of Congress

1. Sulfate-aque-tetramine cobalti sulfate--Chemical properties
2. Sulfate-aque-tetramine cobalti sulfate--Physical properties

Card 3/3

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

5 (2)

AUTHORS: Fialkov, Ya. A. (Deceased), SOV/78-4-8-8/43
Panasyuk, V. D.

TITLE: Investigation of the Isotopic Exchange of Sulphate Ions in Aqueous Solutions of the Sulphate Ammoniates of Trivalent Cobalt (Issledovaniye izotopnogo obmena sul'fatnykh ionov v vodnykh rastvorakh sul'fatoammiakatov trekhvalentnogo kobal'ta)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 8, pp 1747 - 1752 (USSR)

ABSTRACT: The authors investigated aqueous solutions of sulphate pentammine cobalt-(III)-sulphate $[Co(NH_3)_5SO_4]_2SO_4$. This compound differs from the acid salts which were investigated earlier $[Co(NH_3)_5SO_4]_2HSO_4$ (Ref 1) by the ion of the external sphere and by the higher relative content of complex-bound SO_4-groups. The authors investigated the effect of these differences on the physicochemical properties and on the rate of the isotopic exchange of the sulphate groups. The authors first describe the production of the compound and compare the publication data

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with respect to their more or less satisfactory results. The molecular conductivity of the aqueous solution of $[Co(NH_3)_5SO_4]_2SO_4 \cdot H_2O$ follows linearly the Kohlrausch equation until a concentration of $1.25 \cdot 10^{-3}$ mol/l is attained and increases rapidly in the case of a further dilution (Fig 1, Table 1). This may be explained by a secondary aquation process: $[Co(NH_3)_5SO_4]^+ + H_2O \rightleftharpoons [Co(NH_3)_5H_2O]^{3+} + SO_4^{2-}$. This phenomenon which becomes manifest in a longer standing in the solution was not observed in the acid salt. The spectrophotometric measurement showed two maxima: 355 and 515 mμ (Fig 2). In the case of longer standing the long-wave maximum is shifted due to the mentioned aquation in the way which corresponds to the absorption maximum (Ref 9) found for $[Co(NH_3)_5H_2O]^{3+}$. Also in this case the different stability of the acid and the neutral salt becomes manifest. The kinetics of isotopic exchange was investigated by means of S^{35} in sodium sulphate, the sul-

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

Investigation of the Isotopic Exchange of Sulphate Ions in Aqueous Solutions of the Sulphate Ammoniates of Trivalent Cobalt SOV/78-4-8-8/43

phate groups of the inner and the outer sphere could be separated by benzidine. Table 2 and figure 3 show the temperature dependence of the rate of exchange, figure 4 the temperature dependence of the reaction constants. The latter follows the Arrhenius equation. An increasing concentration of the complex salt (Table 3, Fig 5) or of the sulphate ion (Table 4, Fig 6) increases the rate of exchange. In contrast to the acid salt where the exchange of the sulphate ion takes place by means of aquation or by monomolecular nucleophilic substitution, a bimolecular, nucleophilic substitution takes place probably in the case of the normal salt: $[Co(NH_3)_5SO_4]^+ + \overset{*}{S}O_4^{2-} \rightleftarrows [Co(NH_3)_5\overset{*}{S}O_4]^+ + SO_4^{2-}$. The resulting dependence of the reaction on the concentration of the complex ion and on the concentration of the sulphate ions is in agreement with the experimentally found data. There are 6 figures, 4 tables, and 9 references, 2 of which are Soviet.

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Investigation of the Isotopic Exchange of Sulphate Ions in Aqueous Solutions of the Sulphate Ammoniates of Trivalent Cobalt SOV/78-4-8-8/43

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet im. T. G. Shevchenko, Kafedra neorganicheskoy khimii (Kiyev State University imeni T. G. Shevchenko, Chair of Inorganic Chemistry)

SUBMITTED: May 12, 1958

Card 4/4

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.D.

Studying the mutual effect of coordinated addends in some complex compounds of cobalt (III) by the kinetic method [with summary in English]. Dop.AN URSR no.3:349-352 '61. (MIRA 14:3)

1. Kiyevskiy gosudarstvennyy universitet. Predstavleno akademikom AN USSR Delimarskim, Yu.K. [Delimars'kyi, IU.K.]
(Cobalt compounds)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.D.; SOLOMKO, V.P.; REYTER, L.G.

Effect of cis-trans isomerism on the yield kinetics of complex-bound chlorine in solutions of certain trivalent cobalt complexes. Zhur.neorg.khim. 6 no.9:2019-2024 S '61. (MIRA 14:9)

1. Kiyevskiy gosudarstvennyy universitet im. T.G.Shevchenko.
(Chlorine compounds) (Cobalt compounds) (Isomerism)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

SOLOMKO, V.P.; PANASYUK, V.D.; ZELENSKAYA, A.M.

Mutual solubility in the four-component system water - acetone - ethanol - butanol. Zhur.prikl.khim. 35 no.3:628-633 Mr '62. (MIRA 15:4)

1. Kiyevskiy gosudarstvennyy universitet.
(Acetone) (Ethyl alcohol) (Butyl alcohol)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.D.; SHEVCHENKO, S.A.

Aquation of some complex compounds of trivalent cobalt. Ukr. khim. zhur. 29 no.11:1142-1147 '63. (MIRA 16:12)

1. Kiyevskiy gosudarstvennyy universitet im. Shevchenko.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.D.; REYTER, L.G.

Kinetics of aquation in solutions of chloroethylamine bis-ethylenediaminocobaltichloride. Zhur.neorg.khim. 8 no.5: 1131-1135 My '63. (MIRA 16:5)

1. Kiyevskiy gosudarstvennyy universitet imeni T.G.Shevchenko, kafedra redkikh elementov.
(Cobalt compounds) (Aquation)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.D.; REYTER, L.G.

Effect of hydrogen-ion concentration on substitution reactions in cobalt (III) complexes. Zhur.neorg.khim. 10 no.11:2418-2423 N '65. (MIRA 18:12)

1. Kafedra khimii redkikh elementov Kiyevskogo gosudarstvennogo universiteta. Submitted April 28, 1964.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.P.; [illegible]

Complex formation of yttrium and [illegible] serine. Zhur.neorg.khim. 10 no.12 [illegible] (MIRA 19:1)

1. Kiyevskiy gosudarstvennyy un[illegible] imeni [illegible], khimicheskiy fakul'tet, kafedra khim[illegible] redkikh [illegible].

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.D.; GOLUB, V.A.

Complex formation of serine with some rare-earth elements in aqueous solutions. Ukr. khim. zhur. 31 no.10:1026-1031 '65. (MIRA 19:1)

1. Kiyevskiy gosudarstvennyy universitet imeni T.G. Shevchenko. Submitted April 6, 1964.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANAJY [illegible] ARKHA[illegible]

[illegible]
[illegible] comp[illegible]
[illegible]

. Kiyevskiy gosudarst[illegible]
Kafedra redkikh elemen[illegible]

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.D.; REYTER, L.G.

Complex compounds of cobalt with glutamic acid. Zhur. neorg. khim. 10 no.6:1344-1349 Je '65. (MIRA 18:6)

1. Kiyevskiy gosudarstvennyy universitet imeni Shevchenko.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.D.; ARKHAROV, A.V.

Aquation reaction of cobalt (III) complex compounds in mixed aqueous-organic solutions. Ukr. khim. zhur. 31 no.4:338-342 '65. (MIRA 18:5)

1. Kiyevskiy gosudarstvennyy universitet imeni Shevchenko.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.D.; PALENDYCH, Ye.P. [Palendych, Ye.P.]

Kinetics of the [illegible] aqueous organic solvents. [illegible]

1. Kiyevskiy [illegible].

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

L 38567-65 EPF(c)/EPR/EWG(j)/EWT(m)/EWP(b)/EWP(t) Pr-4/Ps-4 IJP(c) JD

ACCESSION NR: AP5006462 S/0021/65/000/002/0231/0234 24 23 B

AUTHOR: Panasyuk, V. D., Golub, V. O., (Golub, V.A.)

TITLE: Complexing of yttrium, lanthanum and some rare earths with serine 27

SOURCE: AN UkrRSR. Dopovidi, no. 2, 1965, 231-234

TOPIC TAGS: rare earth metal, complex formation, yttrium, lanthanum, instability constant, serine complex

ABSTRACT: The complexing of yttrium, lanthanum and 11 rare-earth elements with serine was investigated in aqueous solutions. Since serine is a weak acid, the most useful method for the study of complex formation is the pH-potentiometric method, which makes possible a quite accurate determination of the concentration of ligand. The pH measurements were made with a glass electrode/calomel electrode couple. Bierrum's method was used to calculate the composition and stability of the complexes from the pH-titration data. The determined instability constants of these complexes are summarized in Table 1 of the Enclosure. Org. art. has: 3 figures, 2 tables and 3 formulas.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

L 38567-65
ACCESSION NR: AP5006462

ASSOCIATION: Kyyivs'kyy derzhavnyy universytet (Kiev State University)

SUBMITTED: 23Jan64 ENCL: 01 SUB CODE: GC

NO REF SOV: 000 OTHER: 007

Card 2/3

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, [illegible]; [illegible]

Complex formation of zinc and cadmium with serine in aqueous solutions. Ukr. khim. zhur. 31 no.8:846-850 '65. (MIRA 18:9)

1. Kiyevskiy [illegible] universitet imeni Shevchenko.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.D.; ARKHAROV, A.V.

Effect of the dielectric constant on the kinetics of hydration of cobalt (III) complex compounds. Dop. AN URSR no.2:211-214 '65. (MIRA 18:2)

1. Kiyevskiy gosudarstvennyy universitet.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

L 11863-66 EWT(m)/EWP(j)/T/EWP(t)/EWP(b) IJP(c) JD/JG/RM

ACC NR: AP6000760 UR/0078/65/010/012/2732/2736

44,55 44,55 44,55 42 B

AUTHOR: Panasyuk, V.D.; Golub, V.A.

ORG: Kiev State University im. T.G. Shevchenko, Chemistry Department, Chair of the Chemistry of the Rare Earth Elements (Kievskiy gosudarstvennyy universitet, Khimicheskiy fakul'tet, Kafedra khimii redkikh elementov)

TITLE: Complex formation between yttrium and rare earth elements with hydroxylalanine 27,55

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 12, 1965, 2732-2736

TOPIC TAGS: rare earth element, alanine, chemical reaction, yttrium compound, gadolinium compound, terbium compound, holmium compound, erbium compound, ytterbium compound, lutetium compound

ABSTRACT: The article presents the results of an investigation of complex formation between yttrium and six rare earth elements (gadolinium, terbium, holmium, erbium, ytterbium, and lutetium) and hydroxlalanine in aqueous solutions. The investigation was carried out by the pH-potentiometric alkaline titration of hydroxylalanine, with a varying concentration of metal and a constant concentration of additive. Results are exhibited in tabular and graphic form. The starting materials

Card 1/2 UDC: 546.641:541.49+546.662/1669 541.49

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L 11863-66

ACC NR: AP6000760

were the nitrates and, in some cases, the chloride salts of yttrium, gadolinium, terbium, holmium, erbium, ytterbium, and lutetium which had previously been analyzed for their content of metal and anion. It was found that the above elements with hydroxylalanine in aqueous solutions form complexes with a 1:1 ratio of components. Working up the experimental results by the Bjerrum method, the value of the stability constant was determined for the complexes formed. Comparison of the results with data from the literature shows that hydroxylalanine forms complexes with the above rare earth elements which are less stable and which have a lower coordination number than complex compounds of the rare earth elements with alpha-amino- and beta-oxyacids. Orig. art. has: 5 formulas, 6 figures, and 2 tables.

SUB CODE: 07/ SUBM DATE: 30May64/ ORIG. REF: 003/ OTH REF: 011

HW

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

1ST AND 2ND ORDERS

PROCESSES AND PREPARATIONS INDEX

3RD AND 4TH ORDERS

CA

23

The composition of reducing substances of the hydrolyzates of straw. A. G. Panasyuk and G. I. Khabadzhi. *J. Applied Chem. (U. S. S. R.)* 10, 2037-9 (in French 2040) (1937). The pentose hydrolyzate had n 1.33700, Brix 3.3°, p_H 1.90, d 1.00958 and contained volatile acids (as AcOH) 0.163%, ash 0.183%, N 0.021% and total reducing substances 1.263%. The hexose hydrolyzate had n 1.33735, Brix 3.3°, p_H 1.42, volatile acids 0.125%, ash 0.144%, N 0.18% and reducing substances 1.71%. Beside sugars, the reducing substances consisted of furaldehyde and its Me and MeO derivs., and uronic acids. A. A. Podgorny

COMMON ELEMENTS

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

Pectic substances of winter crop straw V. G. Panasyuk and G. F. Khaladzhi. *J. Applied Chem.* (U. S. S. R.) 11, 342-5 (in French 346) (1938). A sample (500 g.) of straw was extd. with water for 1 hr. The aq. ext. was filtered out, clarified with $Pb(OAc)_2$ and again filtered, yielding the aq. soln. (I). The washed straw was extd. with Et_2O for 24 hrs., filtered and dried. The pectic acid was extd. by the Norman method with $(NH_4)_2CO_3$ and ppted. with an acidified alc. (final concn. 70%) (II). The alc. filtrate contg. pectic substances sol. in 70% alc. was evapd. on a water bath to dryness. The residue was extd. with 70% alc. for 3 days, filtered, and the soln. evapd. to 30-5 cc. The concd. ext. was added by drops to a 1 of 96% alc. The ppt. formed was filtered, washed with alc. and Et_2O and dried over H_2SO_4 (III). I contained pentose 0.19, methylpentose 0.12, mannose 0.04, uronic acids 0.13 and undetd. reducing substances 0.18%. II (the yield 0.83% by wt. of straw) contained ash 10.44, N substances 4.13, pentose 0.00, methylpentose 12.04, uronic acids 43.44, galactose 14.52, MeO groups 8.07 and AcOH 7.24%. III (the yield 0.40-0.45%) contained pentosan, methylpentosan and hexosan in equimol. amts. Eight references. A. A. Podgorny.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS

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CA

23

The composition of reducing substances of the hydrolysates of straw. II V. G. Panasyuk and G. F. Khaladzhi. *J. Applied Chem.* (U. S. S. R.) 11, 1512-16(in French, 1516)(1938); cf. *C. A.* 32, 5202[9]. The hydrolyzate was nearly neutralized to litmus at 80° with $BaCO_3$, filtered while hot and the furan derivs. were steam-distd. The residue was treated with 98% alc. (4 times the vol. of hydrolyzate) and the Ba uronates were filtered out. The contents of glucose, xylose and arabinose were detd. by the existing methods which were checked by using solns. of corresponding pure sugars. Decolorizing the hydrolyzate with norite gave lower yields, since it adsorbed to some extent all sugar, but especially it adsorbed large amts. of xylose and rhamnose. A. A. Podgorny

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B. C. P. A.

CA

23

Hydrolyzates of plant waste. V. G. Panasyuk. *Lesokhim. Prom.* 3, No. 3, 17-21(1940); *Chem. Zentr.* 1940, II, 1506; cf. *C. A.* 33, 5659[illegible].—Rye straw and corn cobs contained, resp.: ash 4.20, 1.45; proteins 5.26, 3.22, water-sol. substances 10.37, 4.81; ether-sol. 3.71, 2.53, pectins 2.43, 0.5; lignin 26.03, 17.7; MeO 3.02, 2.34; pentosans 26.44, 34.9; methylpentosans 2.19, 2.49, cellulose 34.79, 38.33; galactan 1.63, 0.3; mannan 1.43, 0.2, and uronic acid 4.13 and 5.16%. After sepn. of pectins and hemicellulose from the straw, there remained a substance contg. cellulose 79.89, pentosans 13.18, uronic acids 2.01, ash 7.31, and MeO 0.74%. The pentosans and the polyuronides could not be removed from this substance by leaching it 4 times with NaOH. The reducing substances obtained by hydrolyzing the straw at 170°, and by twice hydrolyzing the cobs at 135 and 170° amounted to 3.53 and 2.79%, resp. These hydrolyzates contained uronic acids 3.98, 12.46; furfural traces, 1.7; methylfurfural and hydroxymethylfurfural 5.14, trace; glucose 45.93, 0; galactose 3.06, 1.9; mannose 0.65, 0, xylose 43.88, 61.7; arabinose 2.13, 10.06; and methylpentose 5.2, 4.87%, resp. The nonsugars of the straw hydrolyzate contained ash 0.15, N 0.19, volatile acids 0.12, and nonvolatile acids 0.54%. M. Hoseb

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28

Obtaining good quality xylose liquors from cotton hulls

V. G. Panasyuk and L. V. Podobaeva. *J. Applied Chem.* (U.S.S.R.) 18, 353-60 (1945) (English summary). Max. removal of inorg. matter from cotton hulls is obtained with H_2O treatment for 1 hr. at 150°, followed by dil. H_2SO_4 at room temp. The water treatment as above removes over 20% dry wt. matter including 40% of pentosan content. Hence, 140° is max. temp. at which the loss of pentosans is not too great. The xylose liquors so obtained were of somewhat low quality. The best product was obtained from neutralized hydrolyzate followed by charcoal treatment and alc. purification. G. M. K.

ASM-SLA METAL FOCAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

23

Carbohydrates of cotton plant husks by stepwise hydrolysis. V. G. Panasyuk and L. V. Podobaeva. *Zhur. Prikład. Khim.* (J. Applied Chem.) 22, 145-56(1949).—Hydrolysis of cotton husks by dil. H_2SO_4 in 0.5-hr. steps starting with 110° and progressing by 10° intervals to 190° gave the following results: Crude husks contg. appreciable amts. of cotton fibers are most resistant to total hydrolysis; the product with 25% fiber is hydrolyzed completely only after a 10-step treatment, whereas a product with 16% fiber is hydrolyzed in 9 steps. Most of the hemicellulose is hydrolyzed at 120-30°, whereas cellulose proper is largely attacked at 170-80°. The readily hydrolyzable components are xylan, araban, rhamnan, and polyuronides; the difficultly hydrolyzable matter is composed of mannan and cellulose. The use of 0.15 *N* H_2SO_4 is essentially equiv. to 0.2 *N* H_2SO_4. The more readily hydrolyzable substances give 87-97% yields of monosaccharides, whereas the more resistant give 56-61%, with glucose being most seriously affected by the drastic conditions. Total hydrolysis summary of representative sample gives the following compn. uronic acids 5.15, rhamnose 4.19, arabinose 2.73, xylose 15.09, mannose 0.79, glucose (based on dry wt.) 26.1%.

G. M. Kosolapoff

All-Union Sci. Res. Inst. Sulfate - alcohol + Hydrolysis Ind.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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Panasyuk, V. G.

USSR.

Characteristics of hydrolytic lignin. V. G. Panasyuk. *J. Appl. Chem. U.S.S.R.* 26, 717-19(19[illegible] tion).—See *C.A.* 47, 12800*b*. H. L. H.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.G.

Characteristic of hydrolytic lignin. Zhur.prikl.khim. 26 no.7:763-766 Jl '53. (MLRA 6:7)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut imeni F.E. Dzerzhinskogo. (Lignin)

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PANASYUK, V.G.

Properties of hydrolytic lignin of cotton hulls. V. G. Panasyuk, A. M. Veselovskii, and A. P. Ovcharenko (Chem. Technol. Inst., Dnepropetrovsk). *Gidroliz. i Lesokhim. Prom.* 8, No. 4, 10-13(1955); cf. *C.A.* 49, 4985e. —Hydrolytic lignin from cotton hulls was heated under 40-45 atm., under 1 atm., and in vacuo. The vacuum treatment made it possible to carry away substances formed during the reaction, and prevented cracking and formation of charcoal from gaseous material. Lab. expts. under 80-90 mm., lignin alone or mixed to a paste with the heavy fraction of tar from a preceding expt. in proportions of 1:1 and 3:5, at a final temp. of 500° and duration of heating 1.6-2.0 hrs. gave 47.6-65.2% of hard residue, and 10.0-32.6% of tar; the rest consisted of water, gas, and loss. A catalyst of iron partially reduced in H caused an increase in the amount of gases, and had an unfavorable effect on the yield of tar. The tar obtained in these reactions had a fraction boiling between 180 and 250° forming two layers with n_D^{20} 1.4617 and 1.5078. One fraction was composed of 15% phenols, and up to 80% of neutral substances. The phenol fraction represented 9.68%, and hydrocarbon fraction 3.7% of the lignin. Analogous expts. on a plant scale, gave a tar fraction of up to 25% of the lignin, of which more than 7% consisted of phenols, and 15% neutral substances (hydrocarbons). The ratio lignin:tar in the paste (optimum 1:1.25), and time of reaction (optimum 4 hrs.) seemed to be the deciding factors in the process. The hydrocarbon fraction contained aliphatic and aromatic compds. in a yield of 7.2% of the dry lignin. Phenol fractions have been considered as a source for resins, and the charcoal could be utilized as an adsorbent. T. Jurecic

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

Panasyuk, V. G.

Lignins of cotton husks. V. G. Panasyuk, V. V. Dal', and L. V. Panasyuk (Chem. Technol. Inst., Dnipropetrovsk). *Zhur. Prikład. Khim.* 28, 1211-14(1955).—Aq. NaOH exts. from cotton husks about 7% of an alkali lignin and a fraction of a difficultly extractable lignin. The MeO content (10.7%) in the material was comparable to alkali lignins from other plant sources. The aq. soln. after sepn. of the alkali lignin contains a substance which with 72% H_2SO_4 yields a ppt. contg. 2.95% MeO. Extn. of the husks after EtOH-C_6H_6 treatment with $(CH_2OH)_2$ 1 hr. at 180° yielded about 8% "glycol lignin" in a form of a low-melting resin contg. 12.3% MeO. The Willstätter or König method gives too-high results for lignin in cotton husks. G. M. Kosolapoff

Synthesis of benzyl ethers of cellulose in the presence of xylene. E. N. Lyubimova. *Zhur. Prikład. Khim.* 28, 1220-4(1955).—Addn. of 10-20% xylene to the reaction mixts. of aq. NaOH, cellulose, and $PhCH_2Cl$ serves to improve the prepn. of benzylcellulose by reducing the viscosity and adherence of the product near the end of the operation and facilitates washing of the final product. In such esterification with 6 moles $PhCH_2Cl$/mole cellulose it is advisable to add xylene some 2 hrs. after initiation of the reaction. G. M. Kosolapoff

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USSR/Chemical Technology - Chemical Products and Their Application. Wood Chemistry Products. Cellulose and Its Manufacture. Paper, I-23

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 63365

Author: Panasyuk, V. G., Maksimenko, N. S.

Institution: None

Title: Production of Active Charcoal for Clarification from Lignin of Cotton Hulls

Original Periodical: Gidroliznaya i lesokhim. prom-st', 1956, No 2, 13-14

Abstract: Active charcoal for clarification is made from crude charcoal obtained from hydrolysis lignin of cotton hulls by heating at 850° (with steam) for one hour. Yield of activated clarification charcoal, under these conditions is 48-53% on the basis of the crude charcoal or 25-27% on the basis of dry lignin. In contrast with charcoal produced from wood or hydrolysis lignin of wood, charcoal from lignin of cotton hulls can be activated only once; repetition of the process decreases its activity.

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Hydrolysis of lignin from cotton hulls. V. G. Pannayuk, V. V. Dal, and L. V. Pannayuk (Chem.-Technol. Inst., Dnepropetrovsk). *Zhur. Prikład. Khim.* 29, 144-9(1956); cf. *C.A.* 47, 12800b.—The compn. of lignin obtained from hydrolytic lignin (I) and from cotton hulls (II) is the same. After 20 extns. with 5% NaOH of I and II hydrolyzed with 72% H_2SO_4 the quality and the quantity of lignin obtained was the same. But whereas it was easily removed from the H_2O soln. of I, that from II remained partially in soln. The MeO content after digestion with NaOH was low, 2.95-3.75%, whereas lignin digested with eth. less glycol contained 10.35% of the MeO group. Apparently MeO is broken off during digestion with NaOH. I. Benecowitz

3

Chem

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PAMASYUK, V.G.

Vacuum-thermal decomposition of hydrolysed lignin in the liquid state. Zhur.prikl.khim. 30 no.4:598-603 Ap '57. (MIRA 10:7)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut imeni F.E. Dzerzhinskogo.
(Lignin) (Hydrolysis)

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PANASYUK, V. G.

4E2d3

Thermal treatment of hydrolytic lignin. II. Vacuum-thermal decomposition of hydrolytic lignin in a liquid phase. V. G. Panasyuk (F. E. Dzerzhinskii Chem.-Technol. Inst., Dnepropetrovsk). *Zhur. Prikl. Khim.* 30, 813-16(1957); cf. *C.A.* 51, 13281e.—Vacuum-thermal decompn. of cotton-hull lignin in the liquid phase was as satisfactory as that of wood lignin (*loc. cit.*). Anthracene, as the liquid phase, stabilized itself, with each cycle producing products contg. 14.8% phenols. This was taken as proof that it did not act merely as a solvent of the lignin. The middle fraction, up to 230°, contained acidic substances 2.8, phenols 43.3, bases 2.5, and neutral substances 51% (the last, primarily carbohydrates, was 15%, based on the original dry lignin). The yield and quality of the C was the same as those in dry distn.; it was readily activated. I. Benedowitz

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PANASYUK, V. G.

PANASYUK, V.G.

15

Thermal treatment of hydrolytic lignin. III. Phenols from the decomposition of hydrolytic lignin. V. G. Panasyuk (F. E. Dzerzhinskii Chem.-Polytech. Inst., Dnepropetrovsk). *Zhur. Prikl. Khim.* 30, 1049-50(1957); cf. *C.A.* 51, 17158c.—Phenols obtained from cotton hulls (I) and from wood (II) lignin were sepd. from the oil by extn. with C_6H_6 and fractionated; all fractions contained phenols. The yield by dry distn. from I was about 2% and from II about 1%, whereas the yield from either by vacuum-thermal decompn. in a liquid phase of anthracene was about 9%. In fractions up to 203° nine different phenols were detected by paper chromatography. Guaiacol predominated in fractions from II and cresols (mostly *m*-cresol) in those from I.

I. Bencowitz

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PANASYUK, V.G.

Investigating phenols prepared by thermal decomposition of hydrolytic lignin. Zhur.prikl.khim. 30 no.7:1049-1056 Jl '57. (MIRA [illegible])

1.Dnepropetrovskiy khimiko-tekhnologicheskiy institut im. F.E. Dzerzhinskogo.

(Phenols) (Lignin) (Chromatographic analysis)

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PANASYUK, V.G.

The mechanism of the process of vacuum-thermal decomposition of liquid phase lignin and the influence of physical factors. Zhur. prikl.khim. 30 no.8:1185-1193 Ag '57. (MIRA 11:1)

1.Dnepropetrovskiy khimiko-tekhnologicheskiy institut imeni F.E. Dzerzhinskogo.

(Lignin)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.G.; MAKSIMENKO, N.S.

Thermal decomposition of lignin processed from cottonseed hulls by hydrolysis. Gidroliz. i lesokhim. prom. 11 no.1:16-17 '58. (MIRA 11:2)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut (for Panasyuk).
2. Ferganskiy gidroliznyy zavod (for Maksimenko).
(Lignin)

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PANASYUK, V.G.

Thermal solubility of cotton hull lignin. Zhur. prikl. khim. 31 no.9:1409-1414 S '58. (MIRA 11:10)

1.Dnepropetrovskiy sel'skokhozyaystvennyy institut.
(Lignin)

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PANASYUK, V.G.

Comparing various methods for thermal decomposition of hydrolyzed lignin. Zhur. prikl. khim. 31 no.10:1605-1607 O '58. (MIRA 12:1)

1. Dnepropetrovskiy sel'skokhozyaystvennyy institut.
(Lignin) (Pyrolysis)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V. [illegible], Doc Tech Sci (diss) -- "Thermal treatment of [illegible] hydrolysis industry". Moscow, 1959. 20 pp (Acad Sci USSR, Dept of Tech Sci, Inst of Mineral Fuels), 200 copies (KL, No 12, 1960, 12[illegible])

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.G.; PANASYUK, L.V.; MAKSIMENKO, N.S.; LAPSHIN, F.S.

Vacuum thermal decomposition of hydrolytic lignin from wood. Gidroliz. i lesokhim prom. 12 no.7:16-17 '59 (MIRA 13:3)

1. Dnepropetrovskiy sel'skokhozyaystvennyy institut (for V. Panasyuk). 2. Krasnodarskiy gidrolisnyy zavod (for Maksimenko, Lapshin).
(Lignin)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.G.; REPKA, V.P.; PANASYUK, L.V.; TRUBA, T.I.

Preparation of furfural and other chemicals from plant wastes. Report No.1: Experiments in the laboratory and industrial units. Gidroliz. i lesokhim.prom. 13 no.5:6-7 '60. (MIRA 13:7)

1. Dnepropetrovskiy sel'skokhozyaystvennyy institut.
(Furaldehyde)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.G.; REPKA, V.P.; PANASYUK, L.V.

Standard design for a hydrolysis-furfurole plant. Gidroliz.i lesokhim.prom. 13 no.1:27 '60. (MIRA 13:5)

1. Dnepropetrovskaya laboratoriya khimicheskoy pererabotki rastitel'nykh otkhodov.
(Wood--Chemistry) (Furaldehyde)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

GOLOVA, O.P.; EPSHTEYN, Ya.V.; SERGEYEVA, V.N.; KALNIN'SH, A.I. [Kalnins, A.]; ODINTSOV, P.N.; MAKSIMENKO, N.S.; PANASYUK, V.G.; Prinimali uchastiye: MERLIS, N.M.; DURININA, L.I.; BISENIYETSE, S.K. [Biseniece, S.]; GUNDARS, A.Yu.; FEDORCHENKO, R.I.; MINAKOVA, V.I.

New method for the complete chemical processing of plant tissues. Gidroliz. i lesokhim. prom. 14 no.7:4-6 '61. (MIRA 14:11)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR (for Golova, Epshteyn, Merlis, Durinina). 2. Institut lesokhozyaystvennykh problem i khimii drevesiny AN Latviyskoy SSR (for Sergeyeva, Kalnin'sh, Odintsov, Bisenietse, Gundars). 3. Krasnodarskiy gidroliznyy zavod (for Maksimenko, Fedorchenko, Minakova). 4. Dnepropetrovskiy sel'skokhozyaystvennyy institut (for Panasyuk).

(Plant cells and tissues)
(Botanical chemistry)

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PANASYUK, V.G.; REPKA, V.P.; PANASYUK, L.V.

Influence of various factors on furfurole production from plant wastes by the Dnepropetrovsk method. Zhur. prikl. khim. 34 no. 12:2764-2768 D '61. (MIRA 15:1)

(Furaldehyde)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

GOLOVA, O.P.; EPSHTEYN, Ya.V.; SERGEYEVA, V.N.; KALNIN'SH, A.I. [Kalnins, A.]; ODINTSOV, P.N.; MAKSIMENKO, N.S.; PANASYUK, V.G.

Outlook for a new method of complete processing of plant materials. Gidrolis.i lesokhim.prom. 15 no.3:12-15 '62. (MIRA 15:5)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR (for Golova, Epshteyn). 2. Institut lesokhozyaystvennykh problem i khimii drevesiny AN Latviyskoy SSR (for Sergeyeva, Kalnin'sh, Odintsov). 3. Krasnodarskiy gidroliznyy zavod (for Maksimenko). 4. Dnepropetrovskiy sel'skokhozyaystvennyy institut (for Panasyuk).
(Wood—Chemistry) (Hydrolysis) (Plant cells and tissues)

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GANZ, Semen Naumovich; YEMEL'YANOV, Miney Stepanovich; PARKHOMENKO, Vladimir Dmitriyevich; PANASYUK, V.G., doktor tekhn. nauk, prof. retsenzent; BLOKH, G.A., doktor khim. nauk, prof., retsenzent; KOZOPOLYANSKIY, N.S., dots., otv. red.; DEREVYANCHENKO, R.M., red.

[Plastics in the instrument industry] Plastmassy v apparatostroenii. Khar'kov, Izd-vo Khar'kovskogo univ., 1963. 198 p. (MIRA 18:6)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

REPKA, V.P.; PANASYUK, L.V.; PANASYUK, V.G.

Possibility of the use of salt catalysts in the production of furfurole. Zhur. prikl. khim. 36 no.12:2719-2724 D'63. (MIRA 17:2)

1. Dnepropetrovskaya opornaya laboratoriya Ukrainskogo nauchno-issledovatel'skogo instituta plasticheskikh mass.

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Ca

19

Analysis of glass and of its raw materials. V. I. PANASSUK AND I. PISARENKO. *Ukrain. Khem. Zhur.* 7, Wiss. tech. Teil 1, 4(1932). For analysis not less than 50 g. of glass should be used. SiO_2 is detd. by titrating the ppt. of K_2SiF_6; if this is thoroughly washed, the results differ by not more than 0.04% from those obtained gravimetrically.

B. C. A.

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CA

Reagent for determination of oxygen V. I. Panasyuk *Ukrain. Khem. Zhur.* [illegible] Wiss. Teil 94, 7, 1932. Pyrogallol is replaced by a filtered soln. of 35.4 g. of $FeSO_4$ in 120 cc. of H_2O, to which 10 g. of tartaric acid and 45 cc. of 25% NH_3 are added. [illegible]

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ca

19

Chrome-plated molds for semiautomatic machines of the Kutsher type. V. I. Panasyuk. *Keram. i Steklo* 12, No. 10, 15-16(1955).—Expts. showed that chrome-plated molds used in the manuf. of drinking glasses were much more durable than ordinary molds and improved the quality of the glassware. M. V. Condoide

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CA

17

Process for the purification of technical hydrochloric acid to meet the requirements of the glass industry. V. I. Panasyuk. *Stekol'naya Prom.* 16, No. 9-10, 16-17 (1940); *Chem. Zentr.* 1941, II, 651.—Tech. HCl for lab. purposes (Fe-free) can be sufficiently purified for use in the glass industry by distn. over Cu to combine the excess Cl and H_2SO_4 and absorb what Se is present. The app. is described with the aid of a diagram. M. G. Moore

COMMON ELEMENTS

COMMON VARIABLES INDEX

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

AUTHOR INDEX

1ST AND 2ND LETTER

3RD AND 4TH ORDERS

2ND LETTER

1ST AND 2ND LETTER

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V. I.

C

GILDING OF GLASS BY THE POUR METHOD. V. I. Panasyuk. Stekol'naya I Keram, Prom., 1945, No. 7-8, pp. 5-7. -- Two methods of gilding glass are described. In one, the glass is degreased with $K_2Cr_2O_7$ in 50% H_2SO_4 and kept for 30 min. at room temperature (18° to 20° C.) in a solution of chloroauric acid, KOH, and glycerine. In the second method, the glass is degreased and cleaned with concentrated HNO_3, 10% caustic alkali, and 0.02% $SnCl_2$ (in the order listed) and kept for two periods of 10 to 15 min. each in the gilding solution; the mirror is then given a copper coating by the galvanoplastic method in a bath containing $CuSO_4$ and concentrated H_2SO_4. E.m.f. is 2.5 to 3v., and duration 40 to 60 sec. B.Z.K.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

CA

19

Application of colloidal solutions of metallic palladium for the determination of hydrogen in glass. V. I. Pasnyuk. *Zavodskaya Lab.* 11, 1116-17(1948).—Colloidal soln. of metallic Pd was used to det. H gas by the Paal and Amberger method, based on the reduction of Na palladiate to metallic Pd in the presence of a protective colloid--Na salt of lysalbinic or protalbinic acid. Picric acid used in the analysis serves as the oxidizing agent of H gas activated by its transformation into the at. state on dissolving in the colloidal soln. of metallic Pd.

W. R. Henn

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V. I.

Panasyuk, V. I. - "Determination of the filtration speed through glass and other filters on professor Gertsberg's apparatus," In the symposium: Fiz.-tekhn. svoystva i primeneniye steklovoloknistykh materialov, Moscow-Leningrad, 1949, p. 1 1-11

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

19

CA

Analysis of a charge containing pyrolusite and pyrite cinders. V. I. Popovyuk. *Legkaya Prom.* 11, No. 4, 38-9(1951).—A procedure was developed for analysis of the charge for aluminomagnesia and lime soda silicate glasses. Loss of wt. is detd. by drying a 1-3-g. sample at 280°. To det. Na_2CO_3, treat a 3-7-g. sample with 50 ml. hot water, cool to room temp., add phenolphthalein indicator, and titrate with standardized 0.5 *N* HNO_3. To det. carbonates as $CaCO_3$, add 50 ml. of titrated soln. to a vol. of 0.5 *N* HNO_3 equal to that used in titration, carefully heat and stir, boil for 1-2 min., filter, wash, add bromophenol blue to the filtrate, and titrate with 0.5 *N* NaOH or KOH until light blue. To det. sand and colors, ignite the residue at 800°, cool, and weigh. B. Z. Kamich

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

[illegible], V. I.

Khimicheskii kontrol' proizvodstva [illegible] [Chemical control of [illegible]]. Moskva, Gizlegprom, 1952. [illegible].

SO: Monthly List of Russian Accessions, V[illegible] / No. 1, August 1953

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V. I.

Laboratories

Forms of systematic help for factory laboratories. Leg. prom. 12 No. 5, 195

Monthly List of Russian Accessions, Library of Congress, October 195[illegible]. UNCLASSIFIED.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V. I.

FD 174

USSR/Chemistry - Filter Material

Card 1/1

Author : Panasyuk, V. I., Ashratova, Sh. K., and Kozhukhova, N. V.

Title : Concerning glass fabrics for filtration purposes

Periodical : Khim. prom. 3, 41-43 (169-171), April-May 1954

Abstract : Lists the properties of the two grades of glass fibers manufactured in the USSR (aluminum-magnesium glass and aluminum-borosilicate "alkali-free" glass) and discusses the use of fabrics made of these fibers for industrial filtrations of solutions, protection against smoke, gases, and dust, as material for anode and cathode bags, and as diaphragms in electroplating, electropolishing and electrolysis. Data are listed in 2 tables. 8 USSR references are appended.

Institution : All-Union Scientific Research Institute of Glass Fibers

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.I.; ASHRATOVA, Sh.K.; KOZHUKHOVA, N.V.

Glass filtering cloths. Khim.prom. no.3:169-171 Ap-My '54. (MLRA 7:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut steklovolokna. (Glass fibers) (Filters and filtration)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V. I. (Vitaliy Ivanovich).

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8

BOOKS

Chemical Control of Glassmaking (Khimicheskiy Kontrol Proizvodstava Stekla). 2d ed. V. I. PANASYUK. Gizlegprom, Moscow, 1955. 296 pp. Price [illegible] P. covers the organization and the procedure of chemical control of glassmelting. Many years of experience in this field from a large number of glassworks laboratories and research institutes studying glass and glass wool are summarized. B.Z.K.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

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PANASYUK, V.I.

(The cause of [illegible] In place V. I. [illegible]

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.I.; ASHRATOVA, Sh.K.; YAROSHEVICH, R.A.; SHIROKOVA, A.V.

Analyzing batches of opalescent, boron silicate, and some other kinds of glass. Leg.prom. 18 no.12:19-23 D '58. (MIRA 11:12)

(Glass manufacture--Chemistry)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V. I.

5(2) PHASE I BOOK EXPLOITATION SOV/2802

Akademiya nauk SSSR. Institut geokhimii i analiticheskoy khimii

Redkozemel'nye elementy; poluchenie, analiz, primenenie (Rare Earth Elements; Production, Analysis, and Use) Moscow, Izd-vo AN SSSR, 1959 351 p 5,000 copies printed.

Resp. Ed.: D. I. Ryabchikov, Professor; Eds. of Publishing House: D. S. Trifonov and T.G. Levi; Tech. Ed.: S. G. Markevich; Editorial Board: I. P. Alimarin, Corresponding Member, USSR Academy of Sciences, I. N. Znosovskiy, Doctor of Chemical Sciences, B. V. Katlyarov, Candidate of Chemical Sciences, V. I. Kuznetsov, Doctor of Chemical Sciences, M. M. Sergeyev, Candidate of Chemical Sciences, and Ye. S. Shlyamenko, Candidate of Chemical Sciences.

PURPOSE: This book is intended for chemists in general and for geochemists and analytical chemists in particular.

COVERAGE: This collection of articles consists of reports presented at the Rare Earth Elements Symposium held in June 1956 at the Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy. The book may be divided into three sections: the characteristics, uses and production of rare earth elements (REE); the methods of analyzing REE; and the application of individual rare earth elements and REE mixtures in the glass and metallurgical industries, and their use as catalysts. Considerable space is devoted to the application of ion-exchange chromatography in the production of pure forms of all rare earth elements. The combination of this method with other methods in separating REE on an industrial scale are discussed by D. I. Ryabchikov, Ye. S. Shlyamenko, and M. M. Sergeyev. Thermal methods of separating REE compounds are discussed by I. N. Znosovskiy, who is said to be the first in the USSR to develop methods of processing REE, V. P. Katlyarov, L. P. Andrusova, A. V. Blinkov, and G. P. Aleksandrov. Quantitative X-ray spectral analytical methods are described by E. Ye. Yarmakhova, and chemical methods of analysis by I. P. Alimarin and P. I. Pavlotskaya. The determination of REE impurities in pure products and atomic materials are discussed at length in three articles by A. N. Zaydel' and his associates. All articles are accompanied by photographs, diagrams, tables, and bibliographic references.

Polyakov, E.S. and [illegible] Nikonova. Fluorescent Determination of Small Quantities of Europium 208

~~Zaporozhets, L. I.~~, and E. A. Khroshevich. On the Problem of an Accurate Method of Determining the Content of Ferric Oxide in a KL-20 Preparation 214

Yarmakhova, E. Ye., I. P. Alimarin, and A. I. Moskalenko. The Process of Applying the X-Ray Spectral Method of Analysis in Controlling Technological Processes in Obtaining Individual Rare Earth Elements 217

Zaydel', A. N., N. I. Kalitayevskiy, and A. V. Kuznetsovskiy. Spectrochemical Determination of Y, Th, and Be in Atomic Materials. Communication I. Principle of the Method and Its Application to the Analysis of Beryllium 239

Zaydel', A. N., N. I. Kalitayevskiy, A. V. Kuznetsovskiy, and F. F. Yakimova. Spectrochemical Determination of Y, Th, and Be in Atomic Materials. Communication II. Analysis of Their Ore and Uranium 251

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

5(2) SOV/32-25-2-10/78

AUTHORS: Panasyuk, V. I., Miroyevskaya, N. A.

TITLE: Simplification of the Complexometric Determination of Zirconium in Zirconium-glasses and Concentrations (Uproshcheniye kompleksometricheskogo opredeleniya tsirkoniya v tsirkoniyevykh steklakh i kontsentratakh)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 2, p 147 (USSR)

ABSTRACT: According to the method developed by V. G. Goryushina and Ye. V. Romanova (Ref 1) the complexometric determination of Zr is carried out in 2 n hydrochloric acid after the glass product has been fused in a borax-caustic potash mixture and the filtered hydroxide precipitates are dissolved in hydrochloric acid (1 : 5). In the paper under review a simplification of this method is suggested so that it is possible to omit the filtration and dissolution of the precipitate. The aqueous extraction of the alkaline melt is not rejected but acidified in the presence of the hydroxide precipitate. This simplified method can however only be used in the analyses of products which do not contain phosphoric acid. It was observed that eriochrome-black T shows a better color change in 1 n hydrochloric acid than in 2 n hydrochloric acid. The analysis

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Simplification of the Complexometric Determination of Zirconium in Zirconium-glasses and Concentrations SOV/32-25-2-10/79

process is given. The accuracy of the method described is not inferior to that of the phosphate method (Table). There are 1 table and 1 Soviet reference.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut steklyannogo volokna (All-Union Scientific Research Institute for Glass Fibers)

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.I.; ASLANOVA, M.S., doktor khim. nauk, prof., retsenzent; TSOY, R.M., kand.tekhn.nauk, retsenzent; VAKSMAN, E.Ya., inzh., retsenzent; PLEKHANNIKOV, M.N., red.; ZOLOTAREVA, I.Z., tekhn. red.

[Chemical control of glass manufacture] Khimicheskii kontrol' proizvodstva stekla. Leningrad, Rastekhizdat, 1962. 195 p. (MIRA 15:7)

(Glass manufacture—Chemistry)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

CHERNYAK, M.G., red.; ASLANOVA, M.S., red.; ZAK, A.F., red.; IVANOVA, A.I., red.; KUTUKOV, S.S., red.; PANASYUK, V.I., red.; SHKOL'NIKOV, Ya.A., red.; VASKEVICH, D.N., red.; SHPAK, Ye.G., tekhn.red.

[Methods for testing and quality control of fiber-glass materials] Metody issledovaniia i kontrolia steklovoloknistykh materialov; sbornik statei pod red. M.G. Cherniaka. Moskva, Goskhimizdat, 1963. 92 p. (MIRA 16:6)

1. Vsesoyuznyi nauchno-issledovatel'skii institut stekliannogo volokna.

(Glass fiber industry--Testing)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

[illegible]NASYUK, V. [illegible].

Vacuum [illegible] in glass [illegible]. [illegible] D 65.
[illegible]

1. Vsesoyuznyy nauchno-issledovatel'skiy institut stek oplastikov i steklyannogo volokna.

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PANASYUK, V S

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

120-2-5/3[illegible]

AUTHOR: Korshunov, Yu. V., Meleshko, Ye. A., and Panasyuk, V. [illegible].

TITLE: A device for the observation of the current distribution in an accelerated ion beam at a cyclotron target. (Pribor dlya nablyudeniya Raspredeleniya toka Uskorennykh Ionov na Misheni Tsiklotrona.)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, No. 2, pp. [illegible] (USSR).

ABSTRACT: In many investigations associated with the adjustment and focussing of the emitted particle beam, (Ref. 1), it is necessary to determine the beam current distribution at the target surface. This is usually achieved by means of a probe connected to earth through calibrated resistors. The voltage drop across these resistances, due to ion current, is usually measured by a calibrated DC amplifier. A short description of the electronic commutator used for this purpose is given (Fig. 1). The ion current distribution is displayed on a TRT screen. The use of the commutator shortens the time of the measurements and also provides a control of the working and adjustment of the cyclotron. The device may also be used for obtaining the particle spectrum in mass-spectrography.

Card 1/2 I. I. Vyazovetskiy took part in the construction of the

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12[illegible]-5/37

A Device for the Observation of the Current Distribution in an Accelerated Ion Beam at a Cyclotron Target.

apparatus. The diagram of the electronic commutator and the photograph of a typical oscillogram of the current distribution are given. There is 1 Slavic reference.

SUBMITTED: December, 21, 1956.

ASSOCIATION: Institute of Atomic Energy of Academy of Sciences of USSR. (Institut Atomnoy Energii AN SSSR.)

AVAILABLE: Library of Congress.

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

AUTHOR: Panasyuk, V.S. 89-7-10/32

TITLE: The Possibilities of the Technical Application of the Natural Modulation of an Ion Bundle in a Cyclotron (Vozmozhnosti tekhnicheskogo primeneniya yestestvennoy modulyatsii puchka ionov v tsiklotrone)

PERIODICAL: Atomnaya Energiya, 1957, Vol. 3, Nr 7, pp. 47-50 (USSR)

ABSTRACT: By following up the modifications of one of the first harmonic components (which, for instance, is caused by a change of the transmissivity of momenta), the constant component of the signal may be controlled. This constant component is of decisive importance for many experiments in nuclear physics. The correctness of these deliberations had to be confirmed experimentally.
The method of the investigation and the apparatus: A resonance circle was applied here for the harmonic analysis of the tension impulses which were caused by condensations of accelerated ions. The eigenfrequency of this resonance circle was modified by means of a variable condenser. The signals were amplified to a medium frequency. The amplitudes of the first and the second harmonic components depend (with an accuracy of from 1 to 2%) linearly upon the amount of the constant component of the condensations

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of the accelerated ions. It is thus possible, by means of checking the amplitude of one of the first two harmonic components, to draw conclusions as to the modification of the mean value of the ion flux on the target of the cyclotron. For the purpose of simplifying the screening of the apparatus and the filtration of the high-frequency disturbances, the application of a second harmonic component is of advantage. The possibilities of the technical application of the method: At first a scheme for measuring the energy of the accelerated ions in a deflected bundle is investigated. A scheme for the stabilization of the phase of the compressions of the accelerated particles impinging upon a distant target of the cyclotron also belongs to the type of the schemes discussed here. The high-frequency amplifiers can also be applied in the case of a scheme for the stabilization of the medium current intensity of the ions impinging upon the target of a cyclotron as well as for the starting of counting apparatus for neutron spectroscopy. The cut-off structure of the bundle of the accelerated ions makes it possible also to carry out various investigations of the accelerating processes and the deflection of the ions in a cyclotron. This work

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

The Possibilities of the Technical Application of the Natural Modulation of an Ion Bundle in a Cyclotron 89-7-10/32

was carried out in 1955. There are 3 figures and 2 references, 2 of which are Slavic.

SUBMITTED: October 13, 1956

AVAILABLE: Library of Congress

1. Ion accelerators - Operation 2. Ion bundles - Energy - Measurement

Card 3/3

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V.S.

89-10-18/36

AUTHOR: PANASYUK, V.S.

TITLE: On the Problem of the Motion of Charged Particles in the Central Area of a Cyclotron (K voprosu o dvizhenii z zaryazhennykh chastits v tsentral'noy oblasti tsiklotrona)

PERIODICAL: Atomnaya Energiya, 1957, Vol 3, Nr 10, pp 341-344 (USSR)

ABSTRACT: By the introduction of a new ion optical system, i.e. by improvement of the lens for the first acceleration, it is possible considerably to improve the stability of cyclotron operation within the central domain of the quanta. Measuring of the power lines of the lens makes it possible better to follow the movement of the ions in the horizontal as well as in the vertical plane and thus to carry out new constructions satisfactorily. There are 3 figures and 1 Slavic reference.

SUBMITTED: October 9, 1956
AVAILABLE: Library of Congress

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

PANASYUK, V. S.

120-5-26/35

AUTHOR: Panasyuk, V.S.

TITLE: A Bar Cathode for Ion Source of a Cyclotron (Sterzhnevoy katod ionnogo istochnika tsiklotrona)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, no. 5, p.111 (USSR)

ABSTRACT: The main disadvantage of spiral wire cathodes for the ion source of a cyclotron is the inconvenience of adjustment connected with the necessity of bringing out leads and also the small working life. The adjustment and the exchange of the wire is often carried out in the immediate neighbourhood of the cyclotron and often involves a radiation hazard. If the cathode is made in the form of a tungsten cylinder (Fig.1) heated by induction currents, these disadvantages can be removed. The working life of such a cathode can be much longer than that of a wire cathode. Livingstone and Atterling (Refs. 1 and 2, respectively) have published some ideas on such a cathode. The present work describes the cathode heated by induction by means of a high-frequency generator. The inductor is in the form of a coil made of copper tube and is water-cooled. The power necessary to heat a tungsten cathode to a temperature of about 2 800 °C is of the order of 400 W. A part of the construction of an ion source with induction heating of a rod

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

Panasyuk, V.S.

120-6-18/36

AUTHORS: Kondrashev, L.F., and Panasyuk, V.S.

TITLE: Measurement of the Absolute Magnitude of the Magnetic Field of a Cyclotron without Releasing the Vacuum (Izmereniye absolyutnoy velichiny magnitnogo polya tsiklotrona bez narusheniya vakuuma)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, No.6, pp. 79 - 80 (USSR)

ABSTRACT: A magnetometer using the principle of nuclear resonance absorption (Ref.1) is described. The instrument was constructed in 1951 and was used on the 1.5 m cyclotron. Measurements were carried out in the range 11 to 12 kOe. The instrument is very small in size (30 mm in diameter and 1 200 mm long) and could therefore be introduced in the form of a probe into the accelerating chamber of the cyclotron. The accuracy of the method can be of the order of 10^{-4}%; the accuracy actually used was 10^{-1}%. The following persons collaborated: L.M. Nemenov, A.A. Naumov, P.I. Vasil'yev and L.I. Yudin. There is 1 Slavic reference.

SUBMITTED: September 24, 1956.

AVAILABLE: Library of Congress.

Card 1/1

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

SOV-120-58-1-7/43

AUTHORS: Antonov, A. V., Korshunov, Yu. V., Meleshko, Ye. A. and Panasyuk, V. S.

TITLE: Stabilisation of the High Frequency Voltage on the Dee of a Cyclotron (Stabilizatsiya napryazheniya vysokoy chastoty na duante tsiklotrona)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958, Nr 1, pp 41-46 (USSR)

ABSTRACT: Nuclear reaction studies which are being carried out at the present time require high stability in cyclotron parameters. The following quantities require stabilisation: intensity of the magnetic field, frequency of the h.f. voltage which is applied to the dee, amplitude of the h.f. voltage on the dee and the magnitude of the reflecting potential. It is also desirable to stabilise the ion current from the source. Thus the stabilisation of the dee potential must be looked upon as one of a set of problems associated with the stabilisation of the cyclotron parameters. A comprehensive dee voltage stabilisation should include a stabiliser of the dee voltage relative to the earth as well as

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

SOV-120-58-1-7/43

Stabilisation of the High Frequency Voltage on the Dee of a Cyclotron.

an inter-dee voltage stabiliser. A description is given of the principle and a circuit of an amplitude stabiliser for the h.f. voltage on one of the dees. The stabiliser can be used either continuously or with a modulated signal. The circuit diagrams are given in Figs.3 and 5. The h.f. voltage stabiliser was applied to the "attracting" dee and was tested on a working machine. Introduction of the stabiliser led to a real improvement in the stability of the ion beam at the cyclotron target. In addition, destabilising factors such as random surges are eliminated which ensures smooth running of the machine. The regulation characteristic is given in Fig.4. I. P. Vyazovetskiy, D. A. Kuznetsov, V. Z. Loskutov R. A. Ariskina, B. V. Rybakov and V. A. Sidorov collaborated. There are 5 figures and 7 Soviet references.

SUBMITTED: June 15, 1957.

1. Voltage stabilizers--Performance 2. Voltage stabilizers--Circuits
3. Cyclotrons--Equipment

Card 2/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920015-0

ANTONOV, A.V.; KORSHUNOV, Yu.V.; MELESHKO, Ye.A.; NEMENOV, L.M.; PANASYUK, V.S.;

[Ferrite frequency variator for changing from a cyclotron to a synchro-cyclotron mode of acceleration] Ferritovyi variator chastoty dlia perevoda tsiklotrona v fazotronnyi rezhim uskoreniia. Moskva, Glav. upr. po ispol'zovaniiu atomnoi energii, 1960. 18 p. (MIRA 17:2)

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PANASYUK, V.

PHASE I BOOK EXPLOITATION SOV/5333

Pchelintseva, G. M., ed.

Uskoriteli; sbornik statey (Accelerators; Collection of Articles) Moscow, Atomizdat, 1960. 121 p. Errata slip inserted. 5,000 copies printed.

Scientific Ed.: B.N. Yablokov; Ed.: G.M. Pchelintseva; Tech. Ed.: N.A. Vlasova.

PURPOSE: This collection of articles is intended for scientists and engineers engaged in the construction and operation of particle accelerators.

COVERAGE: These original articles treat specific problems arising in the operation of present-day accelerators, particularly linear electron accelerators. A new accelerator put into operation at the Ukrainskiy fiziko-tekhnicheskiy institut (Ukrainian Physicotechnical Institute) is described, and problems in the dynamics of particles in linear electron accelerators are discussed. New methods are discussed for the extraction of particles from accelerators. Problems associated with the shaping of permanent magnetic fields and the acceleration of multicharge ions are also treated. The changeover of the series cyclotron to the phasotron acceleration mode with a view to increasing the energy of accelerated particles is described, and some problems connected with the bunching of particles are elaborated. No personalities are mentioned. References accompany each article.

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[illegible], V.I., A.P. Kuznetsov, and N. [illegible] Scattering and Radiation Dust [illegible] up [illegible]

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S/058/61/000/007/007/086
A001/A101

AUTHORS: Antonov, A.V., Korshunov, Yu.V., Meleshko, Ye.A., Nemenov, L.M., Panasyuk, V.S.

TITLE: Ferrite frequency changer for conversion of a cyclotron to the phasotron system of acceleration

PERIODICAL: Referativnyy zhurnal. Fizika, no. 7, 1961, 37-38, abstract 7B34 (V sb. "Uskoriteli", Moscow, Atomizdat, 1960, 60 - 72)

TEXT: In order to bring about the proposal on the conversion to the phasotron operation of acceleration of the mass-produced cyclotron with the diameter of electromagnet poles 1,200 mm and to produce 30-Mev protons (instead of 12.6 Mev) in it, the frequency in the acceleration process must be changed by about 5%. The authors have constructed, for modulation of cyclotron frequency, a circuit with ferrite core and radio engineering equipment connected with it. The change of resonance frequency of the dee circuit is brought about by connecting with it an inductance with ferrite core and excitation of the core by alternate current with a frequency equal to that of acceleration cycles. The problem of selecting the ferrite and the method of connecting the circuit with the fer-

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Ferrite frequency changer ...

rite are discussed. The equipment was tested by acceleration of deutrons. Frequency variation in this case amounted to 1.8%. At the final diameter the average stream of deutrons with 2 - 3μamp was obtained. The current pulse amounted to 60 - 90μamp.

A. Talyzin

[Abstracter's note: Complete translation]

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ACCESSION NR: AP3004894 S/0120/63/000/004/0083/0085 69 67

AUTHOR: Borisov, V. A.; Ostreyko, G. N.; Panasyuk, V. S.; Yudin, L. I.

TITLE: High-power pulsed modulators for high-frequency amplifiers and oscillators without long-line shapers

SOURCE: Pribory*i tekhnika eksperimenta, no. 4, 1963, 83-85

TOPIC TAGS: modulator, pulsed modulator, h-f amplifier, h-f oscillator, pulse shaper, long transmission line

ABSTRACT: Two types of pulsed modulators intended for h-f equipment in the supply channel of particle accelerators are described. The modulators do not contain pulse-shaping long lines and, hence, appear to eliminate many drawbacks associated with such lines. Instead, a partial discharge of a capacitor is used. Switching is performed by thyratrons. One circuit is designed for a power amplifier 1 Mw with a pulse duration of 200 microsec and a repetition rate of 5 cps;

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another circuit, 2 Mw, 200 microsec, and 10 cps. "The authors are thankful to V. M. Petrov, who made a number of valuable suggestions for improving both modulator circuits, and also to I. A. Samokhin for his part in calculating and aligning the second circuit." Orig. art. has: 2 figures.

ASSOCIATION: none

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ACCESSION NR: AT5007921 S/0000/64/000/000/0274/0287

AUTHOR: Bayyer, V. N.; Blinov, G. A.; Bondarenko, L. N.; Yerozolimskiy, B. G.; Korobeynikov, L. S.; Mironov, Ye. S.; Naumov, A. A.; Onuchin, A. P.; Panasyuk, V. S.; Popov, S. G.; Sidorov, V. A.; Sil'vestrov, G. I.; Skrinskiy, A. N.; Khabakhpashev, A. G.; Auslender, V. L.; Kiselev, A. V.; Kushnirenko, Ye. A.; Livshits, A. A.; Rodionov, S. N.; Synakh, V. S.; Yudin, L. I.; Abramyan, Ye. A.; Vasserman, S. B.; Vecheslavov, V. V.; Dimov, G. I.; Papadichev, V. A.; Protopopov, I. Ya.; Budker, G. I.

TITLE: Colliding electron-electron, positron-electron, and proton-proton beams

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 274-287

TOPIC TAGS: high energy interaction, high energy plasma, particle physics, particle beam, charged particle beam

ABSTRACT: In the Institute of Nuclear Physics, Siberian Department, Academy of Sciences SSSR, programs on high-energy particle physics are mainly concerned with work on colliding charged particle beams. The Institute considers it unsuitable

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for its purpose to install huge accelerators whose construction requires large resources outlaid and long time. For work on colliding electron-electron, positron-electron, and proton-proton beams, three installations are being built, which are in various stages of readiness. Work on colliding electron beams was conducted at the institute (then a laboratory of the Institute of Atomic Energy imeni I. V. Kurchatov) in the Fall of 1956, after Kerst's report on accelerators with colliding proton beams of the FFAG type. By that time Soviet scientists had already acquired some experience in obtaining large electron currents; in particular, the mentioned laboratory had installed and then abandoned a device for the spiral storage of electrons (G. I. Budker and A. A. Naumov, CERN Symposium, 1, 76 (1956)), by which, subsequently, circulating currents of the order of 100 amperes were obtained. In 1957 two variants of this device were considered at the same time. The first one consisted of two accelerators with spiral storage and subsequent transition of the particles to synchrotron state in comparatively narrow paths. The second one had storage rings with constant magnetic field and frequent external injection because of the damping of the oscillations under the action of radiation. The first variant was more cumbersome; the second variant contained an element not developed at that time, namely a 100-kilovolt commutator of 10 kilo-amperes with nanosecond front. At the end of 1957, the first positive results were obtained

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with a packing discharger of 100 kilovolts, and work stopped on the variant with storage rings. Originally it was proposed to set up two devices: VEP-1 of 2 × 130 Mev energy, and VEP-2 of 2 × 500 Mev energy. The VEP-1 was considered as an actual model of an accelerator and as a device for conducting initial experiments at low energies. After the Panofsky report in 1958 on his work with colliding electron beams conducted in his laboratory at Stanford, construction ceased on 500-Mev storage paths and work was continued on the 2 × 130-Mev installation. Instead of work on colliding electron beams with energies of 500 Mev, work at the end of 1958 was conducted with colliding positron-electron beams and the planning of the VEPP-2 device was begun, whose main elements are a strong-current electron accelerator and a high-vacuum storage path of 700 Mev energy. At the present time the VEP-1 and VEPP-2 are installed in Novosibirsk. The VEP-1 is in a state of neglect, but at the end of 1964 experiments will be begun with it. Installation of the VEPP-2 has been completed. To obtain a marked effect from the application of colliding proton beams, an accelerator is needed with an energy of at least 10 Gev. Since the ordinary accelerator at such energies is a very bulky machine, it was decided to combine the idea of colliding proton beams with the creation of an iron-less impulse accelerator with very large fields and a neutralized central busbar. This latter work of creating such a machine was reported by the authors at a Moscow conference

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held in 1956. The presence of a field with two directions in an iron-less accelerator with central busbar permits the acceleration of protons toward opposite sides in one machine, which makes possible the collision of protons in case of a suitable race-track. At the present time the Institute is developing a proton device with a magnetic field of about 200 kilogauss and radius of 2 meters for a particle energy of 12 Gev in the beam (equivalent energy is around 300Gev). Tests are being conducted on models, and an effective method of injection by overcharging of negative ions is under study. Also under development are an impulse electric power supply system of 100 million joules capacity and an hf power supply. Since 1958 the Institute has been conducting theoretical investigations on the limits of applicability of quantum electrodynamics [V. N. Bayyer, ZhETF, 37, 1490 (1959), and UFN, 78, 619 (1962)] for the calculation of the radiational corrections to the electrodynamic cross-sections [V. N. Bayyer and S. A. Kheyfets, ZhETF 40, 613-715 (1961) and Nuclear Physics (in print)], and on other problems of high-energy particle physics that are connected with the preparation of experiments on colliding beams [V. N. Bayyer, I. B. Khriplovich, V. V. Sokolov, and V. S. Synakh, in ZhTF, 1961]. The present report takes up under the mentioned three main headings the following pertinent topics: the accelerator-injection, storage paths, electron-optical channel,

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